No.: PSDS001A
Edition: 9.2

PRODUCT SAFETY DATA SHEET

FOR

CARBON ZINC BATTERIES

(R03, R6, R14 & R20)

T.G. Battery Co. (China) Limited

GM	QA		
Approved	Verified	Checked	Drafted
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Issued date: May 26, 2015			

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Please follow the warnings and precautions listed below to avoid possible hazards from the improper uses of Carbon Zinc Batteries and to ensure correct and safe use of them.
The following notes should be put in an appropriate and effective location in each end-use product and its instruction manual.
Failure to observe the following instructions may cause battery leakage, heat generation, explosion, or appliance trouble.
Remark: In accordance with OSHA standard 1910.1200 App D (USA)

Section I – Product and Company Identification

Information of Product

Product Identity (used on the label)	Carbon Zinc Batteries (1) R03 AAA Size (2) R6 AA Size (3) R14 C Size (4) R20 D Size

Information of Manufacturer

Manufacturer's Name GPI International Ltd.	**Emergency Telephone Number** Within USA & Canada call: +1-800-424-9300 Outside USA and Canada call: +1-703-527-3887
Address (Number, Street, City State, and ZIP Code) 8/F GP Building, 30 Kwai Wing Road, Kwai Chung, N.T., Hong Kong	**Telephone Number for Information** +852-24843333
	Date of prepared and revised 20th May 2015

Recommended use of chemicals:

Don't directly connect (+) and (-) of a battery to make a short circuit. Don't disassemble, heat or put the battery into fire.

Section II – Hazards Identification

GHS Classification: N.A.

Charging Carbon Zinc Battery may cause electrolyte leakage or damage, because this type of battery is not designed as rechargeable battery.

Improper handling of the battery could lead to distortion, leakage, overheating, or explosion and cause human injury or equipment trouble. Especially touch with liquid leaked out of battery could cause injury like a loss of eyesight. Please strictly observe safety instructions.

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Under normal conditions of use, the battery is hermetically sealed. If the electrolyte is leaked, hazardous material may be released.

Human Health Effects	
Inhalation	The electrolyte inhalation can cause respiratory irritation.
Skin contact	The electrolyte can cause skin irritation, chemical burns.
Eye contact	The electrolyte leaked from the battery cell can cause severe irritation and chemical burns.
Ingestion	If the battery is swallowed and opened, or the electrolyte is ingested, the electrolyte irritates the mouth and the throat seriously.

Environmental Effects

The battery cell remains in the environment. Do not throw it out into the environment.

Specific Hazards

As previously described.

Section III – Composition/Information on Ingredients

Ingredient	CAS №	EINECS №	Content (w/w)			
			R03	**R6**	**R14**	**R20**
Manganese Dioxide	1313-13-9	215-202-6	23～28%	17～27%	17～29.5%	17.5～33%
Zinc	7440-66-6	231-175-3	34～38%	20～23%	17～20%	17～22%
Zinc Chloride	7646-85-7	231-592-0	4.0～6.0%	4.3～6.8%	6.0～8.0%	6.0～8.8%
Ammonium Chloride	12125-02-9	235-186-4	0.2～0.4%	0.2～0.7%	0.6～0.8%	0.3～0.9%
Acetylene Black	1333-86-4	215-609-9	3.7～4.7%	3.4～4.4%	4.0～5.0%	4.4～5.9%
Lead	7439-92-1	231-100-4	< 1500ppm	< 1000 ppm	< 1000ppm	< 1000ppm
Cadmium	7440-43-9	231-152-8	< 10 ppm	< 10 ppm	< 10 ppm	< 10 ppm
Mercury	7439-97-6	231-106-7	< 1 ppm	< 1 ppm	< 1 ppm	< 1 ppm
Other Non-hazardous (Iron Water and others)	7439-89-6 /	231-096-4 /	4.0-4.4% Balance	21-22% Balance	17-18% Balance	14-15% Balance

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Section IV – First-aid Measures

None unless internal materials exposure. If contents are leaked out, observe following instructions.

Inhalation	If electrolyte leakage occurs, provide fresh air and seek medical attention.
Skin Contact	If liquid solution from the battery comes out and contact with skin or clothes, flush out with clean water.
Eye Contact	If any liquid from the battery comes out and contact with eyes, flush out with clean water immediately and consult a doctor.
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

Section V – Fire-fighting Measures

Extinguishing Media	Any class of extinguisher is effective.
Unusual Fire and Explosion Hazards	Acrid or harmful fume is emitted during fire.
Special Protective equipment and Precautions for fire-fighters	Fire fighters should wear self-contained breathing apparatus.

Section VI – Accidental Release Measures

Personal Precautions	**Eye Protection:** Wear safety glasses with side shields if handling an open or leaking battery. **Gloves:** Use neoprene or natural rubber gloves if handling an open or leaking battery.
Environmental precautions	Room ventilation may be required in areas where there are open or leaking batteries.
Containment and Clean Up	Battery materials should be collected in a leak-proof container.

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Section VII – Handling and Storage

Handling	Never swallow. Never touch the liquid leaked out of battery. Never short-circuit the battery. Never charge. Never expose to open flame. Never heat. Never disassemble or deform. 1) Keep the battery out of reach of babies or small children. 2) Do not install the battery in the appliance in reversed positive (+) and negative (-) terminal connection. 3) Do not use the batteries mixed with new battery, old battery or different type battery. 4) Take out used batteries promptly from the appliance. 5) Do not expose the battery to rain or moisture. 6) When not in use for a long time, take out the battery from the appliance and store in a cool dry place. 7) Do not drop, give a strong shock or deform the battery. 8) Do not solder the battery directly.
Storage	Do not leave the batteries in an atmosphere over the temperature of 30℃ or over the humidity of 80% for a long time. Never let the battery contact with water.

Section VIII – Exposure Controls/Personal Protection

Engineering Control

No engineering measure is necessary during normal use. If internal cell materials are leaked, the information below will be useful.

Exposure Control Limit

Common Chemical Name / General Name	OSHA PEL	ACGIH TLV
Manganese Dioxide	5mg/m^3 CEILING (as Mn)	0.2mg/m^3 TWA (as Mn)
Zinc	15mg/m^3 TWA PNOR (total dust)	10mg/m^3 TWA PNOC (inhalable particulate)

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	5mg/m^3 TWA PNOR (respirable fraction)	3mg/m^3 TWA PNOC (respirable particulate)
Zinc Chloride	1mg/m^3 TWA (fume)	1mg/m^3 TWA (fume) 2mg/m^3 STEL (fume)
Ammonium Chloride	None established	10mg/m^3 TWA (fume) 20mg/m^3 STEL (fume)
Acetylene Black	3.5mg/m^3 TWA (as carbon black)	3.5mg/m^3 TWA (as carbon black)

TWA – Time Weighted Average
ACGIH TLV: American Conference of Governmental Industrial Hygienists Threshold Limit Value
OSHA PEL: Occupational Safety & Health Administration Permissible Exposure Limit
PNOR: Particulates not otherwise regulated.
PNOC: Particulates not otherwise classified.

Personal protective equipment

Respiratory protection: N.A.

Hand protection: N.A.

Eye protection: N.A.

Skin and body protection: N.A.

Section IX – Physical and Chemical Properties

Appearance	**Odor**
Solid, Cylindrical Shape	Odorless
	Odor Threshold
	N.A.
pH	**Melting point/freezing point**
N.A.	N.A.
Initial boiling point and boiling range	**Flash point**
N.A.	N.A.

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Evaporation rate N.A.	**Flammability (solid, gas)** N.A. **Upper/lower flammability or explosive limits** N.A.
Vapor pressure N.A.	**Vapor density** N.A.
Relative density N.A.	**Solubility** N.A.
Partition coefficient: n-octanol/water N.A.	**Auto-ignition temperature** N.A.
Decomposition temperature N.A.	**Viscosity** N.A.

Section X – Stability and Reactivity

Stability	Stable under normal use
Possibility of hazardous reactions	Carbon zinc batteries do not meet any of the criteria established in 40 CFR 261.2 for reactivity.
Conditions to avoid	Refer to Section VII
Materials to avoid	Conductive materials, water, seawater
Hazardous decomposition products	Acrid or harmful fume is emitted during fire.

Section XI – Toxicological Information

There is no toxicity data for Battery. Nontoxic, because the chemical mixture from battery is sealed by the metal container, and then packed by the insulated pipe.

Section XII – Ecological Information

Remark: "N.A." is indicated if not applicable.

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Persistence/degradability :

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

Section XIII – Disposal Considerations

The battery may be regulated by national or local laws/ regulations. Please follow the instructions of proper regulation. As electric capacity is left in a discarded battery and it comes into contact with other metals, it could lead to distortion, leakage, overheating, or explosion, In case of storage or throw away the battery, insulate a terminal of the battery with a tape.

Section XIV – Transport Information

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in “strong outer packaging” that prevents spillage of contents. All original packaging for carbon zinc batteries has been designed to be compliant with these regulatory concerns.

Carbon zinc batteries (sometimes referred to as “Dry cell” batteries) are not listed as dangerous goods under the ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road, the IMDG International Maritime Dangerous Goods Code, UN Dangerous Good Regulations, IATA Dangerous Goods Regulations, ICAO Technical Instructions and the U.S hazardous materials regulations (49 CFR).These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions.

Regulatory Body	Special Provisions
ADR	Not regulated
IMDG	Not regulated
UN	Not regulated

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US DOT	49 CFR 172.102 Provision 130
IATA	A123
ICAO	Not regulated

Form of Transportation	**UN No.**	**UN Proper Shipping Name**	**Transport Hazard Class**	**Packing Group Number**	**Environmental Hazards**	**Guidance Transport in bulk**	**Special Precaution**
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

All of carbon zinc batteries are packed in such a way to prevent short circuits or the generation dangerous quantities of heat and meet the special provisions listed above. In addition, the IATA Dangerous Goods regulations and ICAO Technical Instructions require the words “not restricted” and the Special provision number A123 be provided on the air waybill, when an air waybill is issued.

Section XV – Regulatory Information

National or local laws/ regulations applied to battery.

Section XVI – Other Information

Issue Date: May 26, 2015

Department: Quality Assurance Department

Edited by: Zhijin Huang

Remark: Contents of this manual have been edited based on data, information, etc. that TGBC could acquire when editing the manual, so the manual may be revised by new information, if any. Contents of the above data assume normal handling of cells, and are provided as referential information. Therefore, the manual provides no warranties. The customer is requested to use batteries on the basis of appropriate measures established depending on individual conditions, application and operation.

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